General

Guideline Title

Guideline for prevention of unplanned patient hypothermia.

Bibliographic Source(s)

Burlingame BL, Conner RL. Guideline for prevention of unplanned patient hypothermia. In: 2015 Guidelines for Perioperative Practice. Denver (CO): Association of periOperative Registered Nurses (AORN); 2015 Nov. p. e35-e58. [261 references]

Guideline Status

This is the current release of the guideline.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Recommendations

Major Recommendations

Note from the Association of periOperative Nurses (AORN): The original guideline document provides guidance for assessing patients for factors associated with unplanned intraoperative hypothermia, monitoring patient temperatures, preventing unplanned perioperative patient hypothermia, and developing policies and procedures and education for perioperative personnel related to maintaining patient normothermia.

Definitions for the strength of the recommendation is provided at the end of the "Major Recommendations" field.

I. The perioperative registered nurse (RN) should perform a preoperative nursing assessment to determine the presence of factors that could contribute to unplanned hypothermia.
II. The patient's temperature should be measured and monitored in all phases of perioperative care.
III. In all phases of perioperative care, the perioperative RN should develop an individualized plan of care and implement the interventions chosen for prevention of unplanned hypothermia.
IV. A quality improvement (QI)/management program should be in place to identify and respond to opportunities for improvement related to unplanned perioperative hypothermia.
V. Health care personnel should receive education about hypothermia as applicable to the person's job responsibilities. [3: Moderate Evidence]

Definitions

1: Strong Evidence: Interventions or activities for which effectiveness has been demonstrated by high quality evidence from rigorously-designed studies, meta-analyses, or systematic reviews, or rigorously-developed clinical practice guidelines

- Evidence from a meta-analysis or systematic review of research studies that incorporated evidence appraisal and synthesis of the evidence in

the analysis
- Supportive evidence from a single well-conducted randomized controlled trial (RCT)
- Guidelines that are developed by a panel of experts, that derive from an explicit literature search methodology, and include evidence appraisal and synthesis of the evidence

1: Regulatory Requirement: Federal law or regulation

2: High Evidence: Interventions or activities for which effectiveness has been demonstrated by evidence from:

- Good quality systematic review of RCTs
- High quality systematic review in which all studies are quasi-experimental or a combination of RCTs and quasi-experimental studies
- High quality quasi-experimental study
- High quality systematic review in which all studies are non-experimental or include a combination of RCTs, quasi-experimental, and non-experimental studies. Any or all studies may be qualitative
- High quality non-experimental studies
- High quality qualitative studies
- Good quality clinical practice guideline, consensus or position statement

3: Moderate Evidence: Interventions or activities for which the evidence is has been demonstrated by evidence from:

- Good quality systematic review in which all studies are quasi-experimental or a combination of RCTs and quasi-experimental studies
- Good quality quasi-experimental study
- High or good quality literature review, case report, expert opinion, or organizational experience

4: Limited Evidence: Interventions or activities for which there are currently insufficient evidence or evidence of low quality

- Supportive evidence from a poorly conducted research study
- Evidence from non-experimental studies with high potential for bias
- Guidelines developed largely by consensus or expert opinion
- Non-research evidence with insufficient evidence or inconsistent results
- Conflicting evidence, but where the preponderance of the evidence supports the recommendation

5: Benefits Balanced with Harms: Selected interventions or activities for which the Association of periOperative Registered Nurses (AORN) Guidelines Advisory Board is of the opinion that the desirable effects of following this recommendation outweigh the harms

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Any disease or condition requiring a surgical procedure with risk of unplanned intraoperative hypothermia

Guideline Category

Prevention

Risk Assessment

Clinical Specialty

Nursing

Surgery

Intended Users

Advanced Practice Nurses

Hospitals

Nurses

Guideline Objective(s)

To provide guidance for assessing patients for factors associated with unplanned intraoperative hypothermia, monitoring patient temperatures, preventing unplanned perioperative patient hypothermia, and developing policies and procedures and education for perioperative personnel related to maintaining patient normothermia

Target Population

Patients undergoing surgical and other invasive procedures

Interventions and Practices Considered

1. Preoperative nursing assessment to determine the presence of factors that could contribute to unplanned hypothermia
2. Measurement and monitoring of the patient's temperature in all phases of perioperative care
3. Individualized plan of care in all phases of preoperative care
4. Establishment of a quality improvement (QI)/management program to identify and respond to opportunities for improvement related to unplanned perioperative hypothermia
5. Education of health care personnel about hypothermia as applicable to the person's job responsibilities

Major Outcomes Considered

- Patient temperature
- Need for transfusion
- Temperature after peri-prosthetic closure
- Duration of stay

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Evidence Review

A medical librarian conducted a systematic literature search of the Ovid MEDLINE® and EBSCO Cumulative Index to Nursing and Allied Health Literature (CINAHL®) databases on August 23 and September 4, 2013, respectively, and limited results to meta-analyses, systematic reviews, randomized controlled trials (RCTs) and nonrandomized trials and studies, reviews, and guidelines. The librarian also conducted a non-systematic search of Scopus® on September 13, 2013. All searches were limited to literature published in English between January 2007 and the search

date. At the time of the initial search, the librarian also established weekly alerts on the topics included in the initial search. The librarian later added terms from subsequent supplementary searches to the alerts and presented relevant results to the lead author. On March 7, 2014, the librarian conducted supplementary searches and in February 2015, reconducted searches to identify articles that had been published since the original searches but that were not captured in the established alerts. The alerts were terminated in April 2015.

Broad search terms included *perioperative period, perioperative nursing, normothermia; accidental, unplanned, inadvertent, unintentional, core,* and *redistribution hypothermia; shivering; operative surgical procedures; anesthesia; heat loss; heat distribution; body temperature regulation; thermal management; thermoregulatory response threshold; thermoregulatory vasoconstriction;* and *hypothermia*. Terms related to rewarming included *heat loss; preoperative, intraoperative,* and *comfort warming; warming technique; warming blanket; energy transfer* and *thermal pad*; *forced-air* and *convective warming; negative pressure rewarming; circulating water garment; cutaneous warming system; resistive heating; inspired gas humidification; intravenous infusing warming; warming irrigation;* and brand names of warming devices. Temperature-monitoring terms included *intraoperative monitoring; thermography; skin-surface temperature gradient;* and types of temperature and thermometers (e.g., *skin, esophageal, tympanic, temporal artery, oral, axillary*). Other search terms included *intraoperative and perioperative complications; risk factors (*e.g., *blood transfusion, obesity, diabetic neuropathies, pneumatic tourniquet); pressure ulcers; decubitus ulcers;* and *burns*.

Inclusion criteria were research and non-research literature in English, complete publications, relevance to the key questions, and publication dates within the time restriction unless none were available.

Excluded were non-peer-reviewed publications; literature that examined shivering, traumatic hypothermia, intentional or therapeutic hypothermia, anesthesia techniques to manage hypothermia, malignant hyperthermia, and bundling of treatment or preventative measures. Low-quality evidence was excluded when higher quality evidence was available, and literature outside the time restriction was excluded when literature within the time restriction was available (see Figure 1 in the original guideline document for a flow diagram of literature search results).

Number of Source Documents

In total, 606 research and non-research sources of evidence were identified for possible inclusion; of these, 261 were cited in the original guideline document. See Figure 1 in the original guideline document for a flow diagram of literature search results.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

I: Randomized controlled trial (RCT) or experimental study, systematic review of all RCTs

II: Quasi-experimental study, systematic review of quasi-experimental studies or combination of quasi-experimental and RCTs

III: Non-experimental studies, qualitative studies, systematic review of non-experimental studies, combination of non-experimental, quasi-experimental, and RCTs, or any or all studies are qualitative

IV: Clinical practice guidelines, position or consensus statements

V: Literature review, expert opinion, case report, community standard, clinician experience, consumer experience, organizational experience (quality improvement, financial)

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Articles identified in the search were provided to the lead author and evidence reviewers for review and critical appraisal using the Association of periOperative Registered Nurses (AORN) Research or Non-Research Evidence Appraisal Tools as appropriate. The literature was independently evaluated and appraised according to the strength and quality of the evidence. Each article was then assigned an appraisal score. The appraisal score is noted in brackets after each reference, as applicable.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The evidence supporting each intervention and activity statement within a specific recommendation was summarized, and the Association of periOperative Registered Nurses (AORN) Evidence-Rating Model was used to rate the strength of the collective evidence. Factors considered in the review of the collective evidence were the quality of the evidence, the quantity of similar evidence on a given topic, the consistency of evidence supporting a recommendation, and the potential benefits and harms. The assigned evidence rating is noted in brackets after each intervention and activity statement.

Rating Scheme for the Strength of the Recommendations

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Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The Guideline for Prevention of Unplanned Patient Hypothermia has been approved by the Association of periOperative Registered Nurses (AORN) Guidelines Advisory Board. It was presented as a proposed guideline for comments by members and others. The guideline is effective November 15, 2015.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The literature was independently evaluated and appraised according to the strength and quality of the evidence. Each article was then assigned an appraisal score. The appraisal score is noted in brackets after each reference, as applicable. Also see the original guideline document for the systematic review and discussion of evidence.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Prevention of unplanned intraoperative patient hypothermia
- Reduction in the risk of surgical complications associated with intraoperative hypothermia
- Refer to the original guideline document for additional discussion of potential benefits of specific interventions.

Potential Harms

- Thermal injury
- Refer to the original guideline document for additional discussion of potential harms of specific interventions.

Qualifying Statements

Qualifying Statements

- These recommendations represent the Association's official position on questions regarding optimal perioperative nursing practice.
- No attempt has been made to gain consensus among users, manufacturers, and consumers of any material or product.
- Compliance with the Association of periOperative Registered Nurses (AORN) guideline is voluntary.

- AORN's recommendations are intended as achievable and represent what is believed to be an optimal level of patient care within surgical and invasive procedure settings.
- Although they are considered to represent the optimal level of practice, variations in practice settings and clinical situations may limit the degree to which each recommendation can be implemented.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Mobile Device Resources

Resources

Staff Training/Competency Material

Tool Kits

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2015 Nov

Guideline Developer(s)

Association of periOperative Registered Nurses - Professional Association

Source(s) of Funding

Association of periOperative Registered Nurses (AORN)

Guideline Committee

Association of periOperative Registered Nurses (AORN) Guidelines Advisory Board

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Financial Disclosures/Conflicts of Interest

No financial relationships relevant to the content of this guideline have been disclosed by the authors, planners, peer reviewers, or staff.

Guideline Status

This is the current release of the guideline.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Electronic copies: Available to subscribers from the Association of periOperative Nurses (AORN) Web site .

Print copies: Available for purchase from the AORN Web site .

Availability of Companion Documents

The following is available:

- Guideline for prevention of unplanned patient hypothermia evidence table. 2015. 57 p. Available from the Association of periOperative Nurses (AORN) Web site .

Additional implementation tools, including clinical FAQs, online learning modules, videos and community discussions are available from the AORN Web site . A tool kit is also available from the AORN Web site .

Documents related to the evidence rating model, hierarchy of evidence, and expanded appraisal tools are available from the AORN Web site .

In addition, an AORN Guidelines for Perioperative Practice eBook mobile app is available from the AORN Web site .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on February 17, 2016. The information was verified by the guideline developer on March 30, 2016.

Copyright Statement

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